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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,956	12/15/2003	Dale R. Sogge	A42131	4460

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EXAMINER

WHITTINGTON, KENNETH

ART UNIT	PAPER NUMBER
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2862

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

11A

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/736,956	SOGGE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kenneth J Whittington	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 3-7,13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,8-11 and 15 is/are rejected.
- 7) ☒ Claim(s) 2,12,16 and 17 is/are objected to.
- 8) ☒ Claim(s) 1-17 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                                    |

Art Unit: 2862

**DETAILED ACTION**

***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- 5           I.    Claims 1, 2, 8-12 and 15-17, drawn to a method for an angular position sensor having a first magnetic field sensors and a correction magnetic field sensor, classified in class 324, subclass 207.2.
- II.   Claims 3-7, 13 and 14, drawn to a method for an
- 10           angular position sensor and comparing a measurement for a predetermined angle with a reference measurement as an indication of decay of a magnet, classified in class 324, subclass 207.25.

          The inventions are distinct, each from the other because of

15   the following reasons:

          Inventions in Group I and Group II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case,

20   invention in Group I has separate utility such as not requiring the reference measurements that are required in Group II. Furthermore, neither group requires all of the particular features recited in the other group. See MPEP § 806.05(d).

Art Unit: 2862

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

5        During a telephone conversation with Russell Bauman (Reg. No. 27,418) on March 24, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1, 2, 8-12 and 15-17. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3-7, 13 and  
10 14 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently  
15 named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

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**Specification**

The disclosure is objected to because it should refer to the related application, containing the same specification and drawings, by Application No. 10/736,972, filed December 15, 2003

Art Unit: 2862

(Attorney Docket No. A42155). Appropriate correction is required.

The disclosure is also objected to because on page 14,  
5 paragraph 0056, line 3, "is" should be inserted between "value"  
and "stored". Appropriate correction is required.

The lengthy specification has not been checked to the  
extent necessary to determine the presence of all possible minor  
10 errors. Applicant's cooperation is requested in correcting any  
errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs  
15 of 35 U.S.C. 102 that form the basis for the rejections under  
this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or  
20 a foreign country or in public use or on sale in this country, more than one  
year prior to the date of application for patent in the United States.

Claims 1, 8 and 9 are rejected under 35 U.S.C. 102(b) as  
being anticipated by Striker (US 6,326,780). Regarding these  
claims, Striker discloses a method and apparatus for indicating  
25 the angular position of a rotatable member comprising:

Art Unit: 2862

at least one magnet mounted onto a member for rotation with respect to a stator assembly, the magnets diametrically opposed to each other and have reverse poles facing each other (See Striker FIG. 1, magnets 32 and 34, see also col. 3, lines 22-

5 54).

the stator assembly comprising magnetic material (See FIG. 1, item 30) such that the strength of the magnetic field at a first position or air gap (position of GMR element 1 in FIG. 1) varies with the angular position of the stator with respect to the at least one magnet and a magnetic field at a second position or air gap (position of GMR element 5 in FIG. 1) is generally constant and independent of the angular position of the stator with respect to the at least one magnet and formed out of alignment with the magnets; and

15 a first and second magnetic sensor in each of the first and second locations respectively for measuring the magnetic field therein (See FIG. 1, GMR elements 1 and 5, which can also be Hall elements, see col. 2, line 57 to col. 3, line 7). It is noted that rotating the at least one magnet with respect to the stator at small angles as shown in FIG. 1 of Striker would mean that the sensor at position 1 would measure the rotation angle between them and the sensor at position 2 would have a generally constant magnetic flux, but would necessarily measure any change

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Art Unit: 2862

in the magnetic strength of the at least one magnet. Since the device of Striker has the recited structure, it performs the recited functions as well.

5                                   **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

10           (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be  
15           negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35  
20   U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent  
25   art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 10 is rejected under 35 U.S.C. 103(a) as being  
30   unpatentable over Striker in view of Oudet et al. (US 5,789,917). Regarding these claim, Striker teaches all the

Art Unit: 2862

limitations of claim 8 (Note discussion above). However, Striker does not explicitly teach a coupling member being a tubular yoke of magnetic material. Oudet et al. teaches a pair of diametrically opposing arcuately shaped magnets having  
5 opposite poles facing each other (See Oudet et al. FIG. 1, item 5 and col. 3, lines 20-25), the magnets being mounted into a tubular yoke which is made from soft magnetic material (See FIG. 1, item 2 and col. 3, lines 12-20). It would have been obvious at the time the invention was made to employ the yoke and magnet  
10 design of Oudet et al. in the apparatus of Striker. One having ordinary skill in the art would have been motivated to do so to securely hold the magnets in close relation, while allowing rotation, to the stator assembly to direct symmetrical lines of flux therethrough (See col. 4, lines 27-57) and to prevent  
15 outside magnetic fields from interfering with the magnetic fields within the assembly (See col. 1, lines 55-60).

Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Striker in view of Herden et al. (US  
20 6,232,771). Regarding these claims, Striker teaches the limitations of claims 8 and 15 (Note discussion above), except that Striker does not teach a tubular yoke surrounding the rotor and stator assemblies. Herden et al. teaches such a tubular



Art Unit: 2862

yoke surrounding an arcuately shape magnet (See Herden et al. FIG. 1, item 11). It would have been obvious at the time the invention was made to employ the outer yoke surrounding a rotor with at least one arcuate magnet thereon as taught by Herden et al. in the angular position sensor of Striker. One having ordinary skill in the art would have been motivated to do so to guide the magnetic flux along a circuit within the assembly (See FIGS. 2a and 2b), to position the magnets adjacent the stator assembly for rotation thereto (See FIG. 6) and to prevent spurious magnetic fields from interfering with the sensor assembly.

#### ***Allowable Subject Matter***

Claims 2, 12, 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, while the prior art discloses the structures and function of the pair of sensors as outlined in claim 1, the prior art does not show the output signal of the

Art Unit: 2862

second sensor being used as a correction factor for the output signal of the first sensor.

Regarding claims 12, 16 and 17, while the prior art discloses the second sensor located in a position such that the magnetic flux is independent of the angular position, the prior art does not show or teach a sensor measuring flux independent of angular position disposed between the outer yoke and one of the magnets as recited in claims 12 and 16 or a second air gap formed between yoke pieces as recited in claim 17.

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#### **Prior Art**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tanaka et al. (US 5,493,639), Morrison et al. (US 6,642,710), Ohkubo (US 4,492,922), Sano (US 4,769,597) and Keller (US 2,437,563) each disclose method and apparatus for correcting the position signal based on a reduction of magnetic field strength. Nishimura et al. (US 6,323,642) discloses a position sensor for removing ambient magnetic fields from the position sensor readings. The remaining references cited in the PTO-892 disclose various designs for rotary position sensors.

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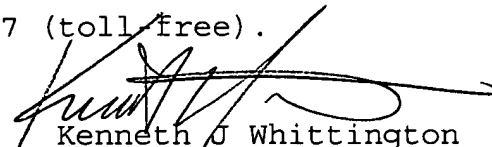
Art Unit: 2862

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J Whittington whose telephone number is (571) 272-2264. The  
5 examiner can normally be reached on Monday-Friday, 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the  
10 organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications  
15 may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic  
20 Business Center (EBC) at 866-217-9197 (toll free).

  
Kenneth J Whittington  
Examiner  
Art Unit 2862

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